



**HYDRAULICS DIVISION
TECHNICAL NOTE**

DATE: April 20, 1983 **REPORT NO:** 83-13

TITLE: Particle Size Data Report, Churchill Harbour

AUTHOR: G.A. Duncan

REASON FOR REPORT: This report responds to a request for particle size data from Mr. Pat Hamilton, National Harbours Board, Ottawa.

CORRESPONDENCE FILE NO: Study H83-302

1.0 INTRODUCTION

This report provides the results of particle size analysis on sediments from Churchill Harbour. Mr. Pat Hamilton, Program Manager, National Harbour Boards, submitted 41 samples requesting gravel, sand, silt and clay percentages.

The samples were analyzed by (1) sieve and (2) sieve and short pipette procedures (Duncan and Lahaie, 1979). Four samples were not analyzed and are listed in the appendix as comments only.

2.0 PROCEDURES

1) Sieve analysis which provides gravel, sand and silt/clay percentages was used to analyze 30 samples. Briefly the procedure consists of:

1. Splitting the sample to 100-200 g.
2. Sieving the split at 1/2 or 1/4 PHI intervals.
3. Processing the results with SIZDIST: a FORTRAN IV computer program (Sandilands and Duncan, 1980).

2) The Sieve and Short Pipette Method which provides gravel, sand, silt and clay percentages was used to analyze 7 samples. Briefly the procedure consists of:

1. Splitting the sample to 20g.
2. Sieving the split at -1 PHI (2.00 mm).
3. Dispersing sample in 50 ml of Calgon solution (50 g/) and mixing it for 15 minutes.
4. Recovering two pipette aliquots of 25 ml for sand, silt and clay percentages.
5. Processing the results with SIZDIST: a FORTRAN IV computer program (Sandilands and Duncan, 1980).

3.0 RESULTS

- 1) For the Sieve Method, the output consists of:
 1. A histogram of the frequency distribution.
 2. The percentage and cumulative percentage of the material occurring within 1/2 PHI unit.
 3. Moment measures (Krumbein and Pettijohn, 1938) and graphic (Folk and Ward, 1957) statistics.
 4. Percentiles.
 5. Percent gravel, sand and silt/clay.
 6. Ratios used to plot Folk's Ternary Classification.
 7. Shepard (1954) and Folk (1974) Ternary Classification.

- 2) For the Sieve and Sedigraph Method, the output consists of:
 1. Percent gravel, sand, silt and clay.
 2. Ratios used to plot Folk's Ternary Classification.
 3. Shepard (1954) and Folk (1974) Ternary Classifications.

PHI CONVERSION

The results of samples analyzed in the Sedimentology Lab are presented using the PHI scale (Krumbein, 1934). The conversion from this PHI equation, $\phi = -\log$ (where ϕ is the diameter in millimeters) to the Wentworth scale is listed below.

PHI ()	Millimeters	Microns	Wentworth Size Class
-5.0	32		
-4.5	24		
-4.0	16		Pebble (-2 to -6)
-3.5	12		
-3.0	8		
-2.5	6		
-2.0	4		
-1.5	2.83		Granule
-1.0	2.00		
-0.5	1.41		Very coarse sand
0.0	1.00		
0.5	0.71		Coarse sand
1.0	0.51	500	
1.5	0.35	350	Medium sand
2.0	0.25	250	
2.5	0.177	177	Fine sand
3.0	0.125	125	
3.5	0.088	88	Very fine sand
4.0	0.0625	62.5	
8.0	0.0039	3.9	Silt Clay

4.0 REFERENCES

- Duncan, G.A. AND LaHaie, G.G. 1979. Size Analysis Procedures used in the Sedimentology Laboratory, NWRI. NWRI, CCIW, Hydraulic Division Manual, September 1979.
- Folk, R.L. 1968. Petrology of Sedimentary Rocks. Hemphill Publishing Co., Austin, Texas, 182 p.
- Folk, R.L. and Ward W.C. 1957. Brazos River Bar: A Study in the Significance of Grain Size Parameters. Jour. Sed. Petrology, V. 27, pp 3-26.
- Krumbein, W.C. and Pettijohn, F.J. 1938. Manual of Sedimentary Petrography. Appleton-Century-Crofts, New York, 549 p.
- Sandilands, R.G. and Duncan, G.A. 1980. SIZDIST - A Computer Program for Size Analysis. NWRI, CCIW, Hydraulics Division Technical Note, Report No. 80-08.
- Shepard, F.P. 1954. Nomenclature Based on Sand-Silt Ratios. Jour. Sed. Petrology, V. 24, pp. 151-158.

APPENDIX 1

SIZDIST OUTPUT

NHR 1

SIEVE ONLY

SAMPLE WT.= 80.7700

PHI PCT. CUMECT.

04/13/55

-0.85			****
-3.95	4.17	4.17	*****
-3.00	5.24	9.41	**
-2.50	2.45	11.86	**
-2.00	2.41	14.27	**
-1.50	3.26	17.53	***
-1.00	3.79	21.32	****
-.50	4.37	25.69	****
0.00	4.04	29.73	*****
.50	6.00	35.73	*****
1.00	5.92	41.65	*****
1.50	.24	41.89	*****
2.00	37.51	79.40	*****
2.50	11.40	90.80	*****
3.00	3.51	94.31	****
3.50	.70	95.01	*
4.00	.24	95.25	*
4.75	.56	95.81	*
5.00		100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

.65	1.64	-0.09	-0.25
.62	1.74	-0.71	.99

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
 FOR SIZE RANGE -3.0 TO -0.0 PHI
 FOLK GRAPHIC STATISTICAL PARAMETERS
 FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.50	5TH	-3.42	16TH	-1.7-	25TH	-.50
			75TH	1.69	84TH	2.03	95TH	2.52
PCT. GRAVEL	21.32	SAND	79.12	SILT+CLAY	.56			
GRAVEL+SAND	99.44			GRAV+SAND/SILT+CLAY	179.49			
LABELS SHEPARD -SAND		FOLK (GMS)-GRAVELLY SAND		(SCS)-				

NHB #

SIEVE ONLY

SAMPLE WT.= 19.7600

PHI PCT. CUMPCT.

04/13/83

-4.00	35.04		*****
-3.50	35.29	35.14	*****
-3.00	9.76	79.32	*****
-2.50	4.45	80.00	****
-2.00	3.59	84.93	****
-1.50	1.06	85.12	*
-1.00	.76	89.19	*
-.50	.66	89.94	*
0.00	1.26	90.00	*
.50	2.73	91.96	***
1.00	3.19	94.59	***
1.50	1.77	97.78	**
2.00	.46	99.99	
2.50	0.00	100.00	
3.00	0.00	100.00	
3.50	0.00	100.00	
4.00	0.00	100.00	
****		100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

-2.81 1.42 1.04 3.34 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -3.5 TO 4.0 PHI

-3.04 1.18 .89 2.32 FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES MEDIAN -3.28 5TH -3.93 16TH -3.77 25TH -3.64 75TH -2.76 84TH -2.05 95TH 1.00

PCT. GRAVEL 89.18 SAND 10.82 SILT+CLAY 0.00 GRAVEL+SAND 100.00 GRAV+SAND/SILT+CLAY 99999.99 LABELS SHEPARD -SAND FOLK(GMS)-GRAVEL (SCS)-

NHB 10

SIEVE ONLY

SAMPLE WT.=133.4980

04/13/53

PHI PCT. CUMECT.

-4.50	17.86	13.86	*****
-4.00	2.65	16.51	***
-3.50	3.00	19.51	
-3.00	1.14	20.65	*
-2.50	1.43	22.08	*
-2.00	1.75	23.83	**
-1.50	1.43	25.26	*
-1.00	1.48	26.74	*
0.00	2.91	29.65	***
.50	2.85	29.49	***
1.00	4.50	34.00	*****
1.50	10.68	44.68	*****
2.00	19.98	64.66	*****
2.50	7.49	72.15	*****
3.00	5.33	77.48	*****
3.50	4.45	81.93	*****
4.00	2.72	84.65	*****
4.50	3.39	88.04	*****
*****		100.00	

MEAN ST. DEV. SKEWNESS KURTOSIS

.38 2.47 -.46 -.52 KRUMBEIN + PETTICORN (1938) MOMENT MEASURES FOR SIZE RANGE -.3 TO 4.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN 1.46	5TH .32	15TH -3.60	25TH -.25
		75TH 2.29	85TH 3.05	95TH*****
PCT. GRAVEL	22.26	SAND 68.36	SILT+CLAY 9.39	
GRAVEL+SAND	90.61		GRAV+SAND/SILT+CLAY	9.65

LABELS (HEAVY) -SAND FOLK (GMS) -GRAVELLY MUDLY SAND (SUS)-

COMMENTS - CLAM SHELL PRESENT NHB 10

AUTOREPORT

NHB 11

SIEVE ONLY

SAMPLE WT.=172.5000

04/13/63

PHI PCT. CUM.PCT.

3.00			*
-2.50	.69	.69	
-2.00	.22	.91	
-1.50	1.03	1.94	*
-1.00	1.10	3.04	*
-.50	1.43	4.46	**
0.00	2.37	6.83	*****
.50	7.89	14.72	*****
1.00	14.57	29.30	*****
1.50	30.17	59.47	*****
2.00	33.14	92.61	*****
2.50	6.69	99.30	*****
3.00	.60	99.90	*
3.50	.18	100.00	
4.00	0.00	100.00	
4.50	0.00	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.18	.53	-.89	-1.72
1.25	.72	-.28	1.19

KRUPPBEIN + PITTIJONK (1938) MOMENT MEASURES
FOR SIZE RANGE -2.5 TO 4.0 PHI
FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WAFL, 1957

PERCENTILES	MEDIAN	1.34	5TH	-.39	16TH	.54	25TH	.85
			75TH	1.73	84TH	1.87	95TH	2.18

PCT. GRAVEL 3.04 SAND 96.96 SILT+CLAY 0.00

GRAVEL+SAND 100.00

GRAV+SAND/SILT+CLAY 99999.99

LABELS SHEPARD -SAND

FOLK(GNS)-SAND

(SCS)-

COMMENTS -
CLAY SHELLS PRESENT NHB 11 *

PHI FCT. CUMFCT.

04/13/83

-4.00			*****
-3.50	6.09	6.09	***
-3.00	2.73	6.61	***
-2.50	2.80	11.61	****
-2.00	4.38	16.60	*****
-1.50	5.56	21.65	*****
-1.00	5.59	27.44	*****
-.50	6.42	33.86	*****
0.00	6.78	40.65	*****
0.50	13.41	54.05	*****
1.00	21.66	75.72	*****
1.50	16.27	91.99	*****
2.00	6.87	98.86	*****
2.50	.94	99.80	*
3.00	.16	99.96	
3.50	.02	100.00	
4.00	0.00	100.00	
*****	0.00	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

-.18 2.58 -.42 -.30 KRUMBEIN + PETTICORN (1936) MOMENT MEASURES FOR SIZE RANGE -0.075 TO 4.0 PHI

-.13 1.62 -.46 .99 FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WAHL, 1957

PERCENTILES MEDIAN .35 5TH -3.59 16TH -2.00 25TH -1.22 75TH .96 84TH 1.25 95TH 1.72

FCT. GRAVEL 27.44 SAND 72.56 SILT+CLAY 0.00 GRAVEL+SAND 100.00 GRAV+SAND/SILT+CLAY 99999.99

LABELS SHEPARD -SAND FOLK (GAS)-GRAVELLY SAND (SCS)-

NHB 14

SIEVE ONLY

SAMPLE WT.=186.8700

PHI PCT. CUMPCT.

04/13/53

-2.50			
-2.00	.07	.07	
-1.50	.63	.90	*
-1.00	1.07	1.97	*
	2.56		***
	4.62		*****
0.00	13.48	9.16	*****
.50	27.49	22.64	*****
1.00	32.20	50.13	*****
1.50	12.52	62.42	*****
2.00	3.66	94.94	*****
2.50	1.15	98.80	*
3.00	.05	99.95	
3.50	0.00	100.00	
4.00	0.00	100.00	
*****	0.00	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

.92	.74	-.34	1.53
.94	.70	-.16	1.20

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -2.0 TO 4.0 PHI

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.00	5TH	0.45	10TH	0.25	25TH	0.54
			75TH	1.33	90TH	1.55	95TH	2.01

PCT. GRAVEL 1.97 SAND 98.03 SILT+CLAY 0.00

GRAVEL+SAND 100.00 GRAV+SAND/SILT+CLAY 99999.99

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SOS)-

COMMENTS - PIECE OF SHELL PRESENT NHB 14*

AUTOREPORT

FHI PCT. CUMFCT.

04/13/53

-2.00			
-1.50	.38	.38	
-1.00	.96	1.34	
-.50	1.88	3.22	
0.00	4.36	7.58	
.50	6.02	13.60	
1.00	9.78	23.37	
1.50	31.21	54.59	
2.00	31.17	85.76	
2.50	11.75	97.51	
3.00	2.33	99.84	
3.50	.16	100.00	
4.00	0.00	100.00	
4.50	0.00	100.00	
*****	0.00	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.31	.78	-.52	1.95	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -1.5 TO 4.0 PHI
1.34	.74	-.24	1.30	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.43	5TH	-.30	16TH	.62	25TH	1.03
			75TH	1.33	94TH	2.97	95TH	2.35

PCT. GRAVEL	1.34	SAND	98.66	SILT+CLAY	0.00
GRAVEL+SAND	100.00				GRAV+SAND/SILT+CLAY 99999.99
LABELS SHEPARD -SAND		FOLK (GMS) -SAND			(SOS) -

COMMENTS -
NHS 15 PIECES OF SHELL PRESENT

NHB 17

SIEVE ONLY

SAMPLE WT.=173.7600

PHI PCT. CUMPCT.

04/19/63

-3.50	1.80		**
-3.00	2.37	1.80	**
-2.50	5.59	4.17	*****
-2.00	12.37	9.75	*****

-1.50	5.23	22.13	*****
-1.00	6.42	27.36	*****
-.50	7.64	33.78	*****
0.00	16.31	41.42	*****

.50	20.91	57.74	*****
1.00	14.50	78.65	*****
1.50	5.97	93.15	*****
2.00	.70	99.12	*

2.50	.10	99.82	
3.00	.03	99.92	
3.50	.02	99.95	
4.00	.03	99.97	

***** 100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

-.09 1.32 -.27 -.72

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURE FOR SIZE RANGE -3.0 TO 4.0 PHI

-.10 1.35 -.34 .78

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.26	5TH -2.43	16TH -1.75	25TH -1.23
			75TH .91	84TH 1.18	95TH 1.66

PCT. GRAVEL 27.36 SAND 72.61 SILT+CLAY .03

GRAVEL+SAND 99.97 GRAV+SAND/SILT+CLAY 3474.40

LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

AUTOREPORT

NHB 18

SIEVE ONLY

SAMPLE WT.=164.0800

PHI PCT. CUM PCT.

04/13/83

-2.50			*
-2.00	.64	.64	*
-1.50	1.00	1.65	*
-1.00	1.48	3.33	*
-.50	1.67	5.20	**
0.00	2.75	7.95	***
.50	4.89	12.84	*****
1.00	10.48	23.32	*****
1.50	19.57	42.89	*****
2.00	37.98	80.87	*****
2.50	1-.02	94.89	*****
3.00	2.31	97.20	**
3.50	1.00	98.21	*
4.00	.64	99.04	*
****	.96	100.00	*

MEAN ST.DEV. SKEWNESS KURTOSIS

1.33	.93	-.54	2.64	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -2.0 TO 4.0 PHI
1.45	.83	-.32	1.43	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.55	5TH	-.55	16TH	.65	25TH	1.00
			75TH	1.92	84TH	2.11	95TH	2.52

PCT. GRAVEL	3.33	SAND	95.71	SILT+CLAY	.96
GRAVEL+SAND	99.04			GRAV+SAND/SILT+CLAY	103.59

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SGS)-

COMMENTS -
NHB 18 PIECES OF SHELL PRESENT

COMMENTS -
NHB 19 COBBLE PRESENT 222.48G/87X59X+8MM
ASSORTED PEBBLES PRESENT
SMALL AMOUNT OF SAND PRESENT 768.52G

*
*
*

NHB 20

SIEVE ONLY

SAMPLE WT. = 80.8600

PHI PCT. CUMFCT.

04/13/53

-4.50			*****
-4.00	9.25	9.25	*****
-3.50	14.19	23.44	*****
-3.00	9.70	33.13	*****
-2.50	6.44	39.57	*****
-2.00	5.60	45.18	*****
-1.50	3.10	48.28	***
-1.00	1.98	50.26	**
-0.50	3.80	54.06	****
0.00	3.02	57.07	***
.50	3.34	60.41	****
1.00	5.35	65.77	*****
1.50	6.79	72.56	*****
2.00	10.19	82.75	*****
2.50	7.92	90.66	*****
3.00	3.53	94.19	****
3.50	1.86	96.05	**
4.00	.83	96.88	*
4.50	2.92	97.80	***
*****		100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

-1.00	2.50	.09	-1.52	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -4.0 TO 4.0 PHI
-.92	2.56	.11	.60	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WAFU, 1957

PERCENTILES	MEDIAN -1.07	5TH -2.23	16TH -3.75	25TH -5.42
		75TH 1.62	84TH 2.03	95TH 3.16

PCT. GRAVEL	50.26	SAND	46.82	SILT+CLAY	2.92
GRAVEL+SAND	97.08			GRAV+SAND/SILT+CLAY	33.26

LABELS SHEPARD -SAND FOLK (GMS)-SANDY GRAVEL (SCS)-

COMMENTS -
NHB 20 LARGE PEBBLE PRESENT /49.76
(52X43X20MM)/CLAMSHELLS PRESENT
WT./9.39G

*
*
*

NHB 21

SIEVE ONLY

SAMPLE WT.=179.6390

PHI FGT. CUMFCT.

04/13/83

-3.50			
-3.00	2.06	2.06	**
-2.50	3.12	5.19	***
-2.00	2.35	7.54	**
-1.50	2.76	10.30	***
-1.00	1.88	12.17	**
-.50	2.74	14.91	***
0.00	4.41	19.32	****
.50	6.77	26.09	*****
1.00	13.18	39.20	*****
1.50	14.21	53.41	*****
2.00	32.15	65.55	*****
2.50	12.36	77.91	*****
3.00	1.39	99.30	*
3.50	.15	99.45	
4.00	.08	99.53	
4.75	.07	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

.87 1.41 -.69 1.16

KRUMBEIN + PETTICORN (1938) MOMENT MEASURES FOR SIZE RANGE -3.0 TO 4.0 PHI

.99 1.33 -.54 1.42

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WAFLE, 1967

PERCENTILES	MEDIAN	1.38	5TH	-2.53	16TH	-.33	25TH	.42
			75TH	1.84	84TH	1.93	95TH	2.38

PCT. GRAVEL 12.17 SAND 87.35 SILT+CLAY .47
 GRAVEL+SAND 99.53 GRAV+SAND/SILT+CLAY 209.65
 LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

COMMENTS -
NHB 21 SHELLS PRESENT

NMB 22

SIEVE ONLY

SAMPLE WT.=177.5700

PHI PCT. CUMECT.

04/13/53

-4.00			*
-3.50	1.35	1.35	**
-3.00	1.57	2.91	*
-2.50	.60	3.51	*
-2.00	1.02	4.53	**
-1.50	2.04	6.56	****
-1.00	3.63	10.21	*****
-.50	6.53	16.74	*****
0.00	10.47	27.22	*****
.50	17.44	44.66	*****
1.00	29.51	74.17	*****
1.50	48.17	92.34	*****
2.00	6.14	98.47	*
2.50	1.13	99.61	
3.00	.28	99.89	
3.50	.05	99.94	
4.00	.02	99.95	
*****	.05	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

.34 1.11 -.71 2.74 KRUMBEIN + PETTICORN (1938) MOMENT MEASURES FOR SIZE RANGE -3.5 TO 4.0 PHI

.43 1.00 -.32 1.31 FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WAHL, 1957

PERCENTILES MEDIAN .59 5TH -1.59 16TH -.55 25TH -.21 75TH 1.02 84TH 1.27 95TH 1.72

PCT. GRAVEL 10.21 SAND 89.79 SILT+CLAY .05 GRAVEL+SAND 99.95 GRAV+SAND/SILT+CLAY 2213.62

LABELS SHEPARD -SAND FOLK (GMS)-GRAVELLY SAND (SCS)-

NHB 23

SIEVE AND PIPETTE (2)

SAMPLE WT. = 25.8526

04/13/53

PHI PCT. CUMPCT.

-3.50			***
-3.00	3.00	3.00	***
-2.50	2.64	5.64	**
-2.00	2.29	7.92	***
-1.50	3.15	11.07	**
-1.00	2.13	13.21	**
-.50	1.89	15.10	**
0.00	1.73	16.83	**
.50	1.97	18.80	***
1.00	2.56	21.37	****
1.50	3.51	24.87	****
2.00	3.67	28.54	****
2.50	1.89	30.43	**
3.00	1.14	31.58	*
3.50	1.10	32.68	*
4.00	.75	33.43	*
5.00	44.01	77.44	*****
6.00	22.56	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

-.15 2.01 .31 -1.16

KEUMBEIN + PETTIJOHN (1935) MOMENT MEASURES FOR SIZE RANGE -3.0 TO 4.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	5.51	5TH	-2.62	15TH	-.24	25TH	1.52
			75TH	7.75	84TH	*****	95TH	*****

PCT. GRAVEL	13.21	SAND	20.22	SILT (PIPETTE)	44.01	CLAY (PIPETTE)	22.56
				(SEDIGRAPH)	0.00	(SEDIGRAPH)	0.00
GRAVEL+SAND	33.43	SILT/(SILT+CLAY)	66.11PCT.	GRAV+SAND/SILT+CLAY	.50		
LABELS SHEPARD	-SAN	SIL	CLY	FOLK (GMS)	-GRAVELLY MUD	(SCS)-	

AUTOREPORT

NHB 24A

SIEVE AND PIPETTE (2)

SAMPLE WT.= 23.6920

PHI PCT. CUMFCT.

04/21/83

-2.00				
-1.50	1.38	1.38	*	
-1.00	.42	1.80		
-.50	2.01	3.81	**	
0.00	2.55	6.36	***	
.50	4.52	10.88	*****	
1.00	7.99	18.88	*****	
1.50	10.05	28.92	*****	
2.00	9.67	38.59	*****	
2.50	9.84	48.43	*****	
3.00	3.43	51.86	***	
3.50	1.63	53.49	**	
4.00	2.34	55.83	**	
4.00	30.07	85.90	*****	
8.00	14.10	100.00	*****	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.38 1.16 -.18 .26

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -1.5 TO 4.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	2.73	5TH	-.27	16TH	.82	25TH	1.30
			75TH	6.55	84TH	7.75	95TH	*****

PCT. GRAVEL	1.80	SAND	54.03	SILT (PIPETTE)	30.07	CLAY (PIPETTE)	14.10
				(SEDIGRAPH)	0.00	(SEDIGRAPH)	0.00
GRAVEL+SAND	55.83	SILT/(SILT+CLAY)	68.05	PCT.GRAV+SAND/SILT+CLAY	1.26		
LABELS SHEPARD	-SILTY SAND	FOLK(GMS)	-MUDDY SAND			(SCS)	-SILTY SAND

NHB 24B

SIEVE AND PIPETTE (2) SAMPLE WT.= 22.9677

PHI PCT. CUMPT.

04/19/63

.50

1.00	7.37	7.37	*****
1.50	5.15	12.53	*****
2.00	12.13	24.66	*****
2.50	16.13	40.78	*****

3.00	6.04	46.82	*****
3.50	2.71	49.53	***
4.00	.04	49.58	*****
8.00	33.21	82.79	*****

*****	17.21	100.00	*****
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MEAN ST.DEV. SKEWNESS KURTOSIS

1.92 .69 -.08 -.61

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURE FOR SIZE RANGE 1.0 TO 4.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	4.05	5TH	.84	16TH	1.64	25TH	2.01
			75TH	7.06	84TH*****		95TH*****	

PCT. GRAVEL	0.00	SAND	49.58	SILT (PIPETTE)	33.21	CLAY (PIPETTE)	17.2
				(SEDIGRAPH)	0.00	(SEDIGRAPH)	0.0

GRAVEL+SAND 49.58 SILT/(SILT+CLAY) 65.87PCT.GRAV+SAND/SILT+CLAY .98

LABELS SHEPARD -SILTY SAND FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

COMMENTS - NHB 24B SHELLS PRESENT

AUTOREPORT

NHB 25A

SIEVE ONLY

SAMPLE WT.=182.4400

04/13/63

PHI	PCT.	CUM PCT.	
-2.50			
-2.00	.10	.10	
-1.50	.60	.71	*
-1.00	1.58	.71	**
	3.67	2.29	****
-.50	6.30	5.56	*****
0.00	14.26	14.26	*****
.50	28.75	28.75	*****
1.00	23.66	54.85	*****
1.50	17.51	75.51	*****
2.00	3.72	96.02	****
2.50	.20	99.74	
3.00	.02	99.93	
3.50	.02	99.95	
4.00	.03	99.97	
****	.03	100.00	

MEAN ST. DEV. SKEWNESS KURTOSIS

.64 .80 -.30 .41 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
 FOR SIZE RANGE -2.0 TO 4.0 PHI
 .87 .79 -.12 1.01 FOLK GRAPHIC STATISTICAL PARAMETERS
 FOLK AND WARD, 1957

PERCENTILES MEDIAN .91 5TH .63 16TH .66 25TH .57
 75TH 1.43 84TH 1.66 95TH 1.97

PCT. GRAVEL 2.29 SAND 97.66 SILT+CLAY .03
 GRAVEL+SAND 99.97 GRAV+SAND/SILT+CLAY 3647.60

LABELS SHEPARD -SAND FOLK (GMS)-SAND (SCS)-

NHB 25B

SIEVE ONLY

SAMPLE WT.=177.9700

04/13/63

PHI PCT. CUM PCT.

-2.50			**
-2.00	1.57	1.57	**
-1.50	1.81	3.38	**
-1.00	2.30	5.69	**
	3.22		***
-.50	4.78	8.91	****
0.00	7.92	13.68	*****
.50	16.26	21.80	*****
1.00	21.27	37.96	*****
1.50	29.94	59.13	*****
2.00	12.83	65.88	*****
2.50	1.94	97.91	**
3.00	.13	99.85	
3.50	.01	99.98	
4.00	.02	99.99	
*****	.02	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.08	1.03	-.56	1.19	KRUMBEIN + PETTICORN (1938) MOMENT MEASURES FOR SIZE RANGE -2.0 TO 4.0 PHI
1.14	.99	-.31	1.21	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.29	5TH	1.15	16TH	.15	25TH	.60
			75TH	1.81	84TH	1.98	95TH	2.39

PCT. GRAVEL	5.69	SAND	94.30	SILT+CLAY	.02
GRAVEL+SAND	99.98			GRAV+SAND/SILT+CLAY	5931.33

LABELS SHEPARD -SAND FOLK (GMS)-GRAVELLY SAND (SCS)-

NHB 2c

STIEVE ONLY

SAMPLE WT.=162.3810

PHI PCT. CORRECT.

04/13/53

-3.00			***
-2.50	2.69	2.69	****
-2.00	3.87	6.56	*****
-1.50	7.40	13.96	*****
-1.00	5.60	19.56	*****
-0.50	6.24	25.80	*****
0.00	5.35	31.15	*****
.50	7.17	38.32	*****
1.00	14.61	52.93	*****
1.50	22.17	75.10	*****
2.00	19.88	94.98	*****
2.50	4.38	99.36	****
3.00	.50	99.86	*
3.50	.01	99.91	
4.00	.01	99.91	
****	.09	100.00	

MEAN ST. LEV. SKEWNESS KURTOSIS

.45	1.36	-.38	-.55	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -2.5 TO 4.0 PHI
.44	1.40	-.47	.84	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.90	5TH	-2.20	16TH	-1.32	25TH	-.56
			75TH	1.50	84TH	1.72	95TH	2.00

PCT. GRAVEL 19.56 SAND 80.35 SILT+CLAY .09

GRAVEL+SAND 99.91 GRAV+SAND/SILT+CLAY 1159.66

LABELS SHEPARD -SAND FOLK (GMS) -GRAVELLY SAND (SCS) -

COMMENTS -
NHE 25 ASSORTED PEBBLES NO LARGER THAN
37MM + CLAMSHELLS PRESENT / 99.75G

+

+

NHB 29

SIEVE ONLY

SAMPLE WT. = 76.0900

PHI PCT. CUM PCT.

04/13/83

-4.50	9.29		*****
-4.00	4.24	9.29	****
-3.50	3.69	13.54	****
-3.00	4.69	17.23	****
-2.50	4.03	21.92	****
-2.00	11.24	25.96	*****
-1.50	6.15	37.19	*****
-1.00	5.49	43.34	*****
-.50	6.06	48.54	*****
0.00	8.12	54.90	*****
.50	14.71	63.02	*****
1.00	14.27	77.72	*****
1.50	6.32	92.00	*****
2.00	1.10	95.32	*
2.50	.28	99.42	
3.00	.05	99.70	
3.50	.03	99.75	
4.00	.22	99.78	
*****		100.00	

MEAN ST. DEV. SKEWNESS KURTOSIS

-.77 1.92 -.21 -1.09
 -.78 2.00 -.27 .61

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
 FOR SIZE RANGE -4.0 TO 4.0 PHI
 FOLK GRAPHIC STATISTICAL PARAMETERS
 FOLK AND WARD, 1957

PERCENTILES MEDIAN -.40 5TH -.25 16TH -3.17 25TH -2.12
 75TH .91 84TH 1.22 95TH 1.74

PCT. GRAVEL 43.34 SAND 56.43 SILT+CLAY .22
 GRAVEL+SAND 99.78 GRAV+SAND/SILT+CLAY 446.53

LABELS SHEPARD -SAND FOLK (GMS) -SANDY GRAVEL (SCS) -

COMMENTS -
 NHB 29 ORGANICS+MANY CLAMSHELLS PRESENT
 2 LARGE PEBBLES PRESENT
 1-(32MM/WT, 46.26G) 2-(23MM/WT, 31.92G)

*
 *
 *

NHB 30

SIEVE ONLY

SAMPLE WT.= 77.2300

04/13/83

PHI PCT. CUMFCT.

-2.00	1.39		*
-1.50	1.96	1.39	**
-1.00	3.63	3.35	***
-.50	6.28	6.98	*****
0.00	10.91	13.25	*****
.50	20.58	24.17	*****
1.00	25.73	44.75	*****
1.50	22.32	70.48	*****
2.00	6.50	92.80	*****
2.50	.64	99.30	*
3.00	.04	99.94	
3.50	.01	99.97	
4.00	.01	99.99	
*****	.01	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

.97 .87 -.41 .64

KRUMBEIN + PETTIGORN (1938) MOMENT MEASURES FOR SIZE RANGE -1.5 TO 4.0 PHI

1.01 .87 -.22 1.12

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.11	5TH	-.77	16TH	.13	25TH	.52
			75TH	1.50	84TH	1.80	95TH	2.17

PCT. GRAVEL	3.35	SAND	96.63	SILT+CLAY	.01
GRAVEL+SAND	99.99			GRAV+SAND/SILT+CLAY	7695.00
LABELS SHEPARD -SAND		FOLK(GMC)-SAND		(SCS)-	

NHB 31

SIEVE ONLY

SAMPLE WT.=155.4300

PHI FCT. CUMFCT.

04/13/53

-1.50	11.96		*****
-1.00	11.38	11.96	*****
-.50	14.53	23.34	*****
0.00	16.25	37.87	*****
.50	20.23	54.12	*****
1.00	17.17	74.36	*****
1.50	7.72	91.52	*****
2.00	.65	99.24	*
2.50	.06	99.89	
3.00	.02	99.95	
3.50	.01	99.97	
4.00	.03	99.97	

***** 100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

.29 .92 -.07 -.95

KEUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -1.0 TO 4.0 PHI

.28 .98 -.12 .85

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.37	5TH	-1.29	16TH	-.62	25TH	-.44
			75TH	1.02	84TH	1.28	95TH	1.73

PCT. GRAVEL 11.96 SAND 88.01 SILT+CLAY .03
 GRAVEL+SAND 99.97 GRAV+SAND/SILT+CLAY 3884.75
 LABELS SHEPARD -SAND FOLK (GMS)-GRAVELLY SAND (SCS)-

NHB 32

SIEVE ONLY

SAMPLE WT.=151.1000

PHI PCT. CUM.PCT.

04/13/83

-1.50			*****
-1.00	6.38	6.38	*****
-.50	6.07	12.45	*****
0.00	10.01	22.46	*****
	16.88		*****
.50	32.80	39.34	*****
1.00	24.06	72.14	*****
1.50	3.43	96.20	***
2.00	.15	99.64	
2.50	.03	99.78	
3.00	.05	99.81	
3.50	.03	99.86	
4.00	.11	99.89	
*****	100.00		

MEAN ST.DEV. SKEWNESS KURTOSIS

.51	.76	-.35	.06
.53	.78	-.31	1.08

KRUMBEIN + PETTIJOURN (1938) MOMENT MEASURES FOR SIZE RANGE -1.0 TO 4.0 PHI

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.66	5TH -1.11	16TH -.32	25TH .03
			75TH 1.06	84TH 1.25	95TH 1.46

PCT. GRAVEL 6.38 SAND 93.51 SILT+CLAY .11
 GRAVEL+SAND 99.89 GRAV+SAND/SILT+CLAY 887.82
 LABELS SHEPARD -SAND FOLK (GMS)-GRAVELLY SAND (SCS)-

COMMENTS -
NHB 34 COBBLE PRESENT 338.47G/110 X 9X45MM
ASSOCIATED PEBBLE SIZE NO LARGER THAN
57MM / CLAMSHELLS + SAND PRESENT / 275.1G

*
*
*

AUTOREPURT
10/17

04/21/83

PHI	FCT.	CUMFCT.	
-1.00			
	.18		
-.50		.18	*
	.98		
0.00		1.16	**
	1.96		
.50		3.12	***
	2.59		
1.00		5.71	*
	1.25		
1.50		6.96	
	.27		
2.00		7.23	
	.22		
2.50		7.45	
	.36		
3.00		7.81	
	.89		*
3.50		8.70	
	2.37		**
4.00		11.07	*****
	66.04		*****
8.00		77.11	*****
	22.89		*****
*****		100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.57 1.47 .22 -1.36 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -.5 TO 4.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	6.36	5TH	.66	16TH	4.30	25TH	4.64
			75TH	7.97	84TH	*****	95TH	*****
FCT. GRAVEL	0.00	SAND	11.07	SILT (PIPETTE)	66.04	CLAY (PIPETTE)	22.89	
				(SEDIGRAPH)	0.00	(SEDIGRAPH)	0.00	

GRAVEL+SAND 11.07 SILT/(SILT+CLAY) 74.26PCT.GRAV+SAND/SILT+CLAY .12

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

NHB 36

SIEVE ONLY

SAMPLE WT.=154.6700

PHI PCT. CUMECT.

04/13/83

-2.50				
-2.00	1.35	1.35	*	
-1.50	1.02	2.37	*	
-1.00	1.36	3.73	*	
	2.75		***	
-0.50	8.98	6.48	*****	
0.00	21.17	15.38	*****	
.50	33.84	36.55	*****	
1.00	19.31	70.39	*****	
1.50	9.07	89.59	*****	
2.00	1.02	98.77	*	
2.50	.17	99.79		
3.00	.02	99.95		
3.50	.01	99.97		
4.00	.02	99.98		
*****		100.00		

MEAN ST.DEV. SKEWNESS KURTOSIS

.63	.77	-.49	2.21	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -2.0 TO 4.0 PHI
.69	.72	-.08	1.18	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.70	5TH	-.77	16TH	.01	25TH	.23
			75TH	1.12	84TH	1.35	95TH	1.79

PCT. GRAVEL	3.73	SAND	98.25	SILT+CLAY	.02
GRAVEL+SAND	99.93			GRAV+SAND/SILT+CLAY	5154.67

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-

NHB 37

SIEVE ONLY

SAMPLE WT.=161.3300

PHI PCT. CUMFCT.

04/13/63

.25	.02	
.50	.09	.02
.75	.64	.11
1.00	4.43	.75

1.25	18.33	5.15
1.50	25.92	23.50
1.75	32.34	49.42
2.00	10.11	81.76

2.25	5.91	91.87
2.50	1.68	97.79
2.75	.28	99.46
3.00	.15	99.74

3.25	.02	99.89
3.50	.02	99.92
3.75	.01	99.94
4.00	.06	99.94

***** 100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

1.75	.34	.19	.86
------	-----	-----	-----

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE .5 TO 4.0 PHI

1.74	.34	.01	1.08
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FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARE, 1957

PERCENTILES	MEDIAN	1.75	5TH	1.24	16TH	1.40	25TH	1.51
			75TH	1.95	84TH	2.06	95TH	2.36

PCT. GRAVEL	0.00	SAND	99.9-	SILT+CLAY	.06
GRAVEL+SAND	99.94			GRAV+SAND/SILT+CLAY	1791.56
LABELS SHEPARD	-SAND	FOLK (GMS)-SAND		(SCS)-	

NHB 33

SIEVE ONLY

SAMPLE WT.=136.3200

PHI PCT. CUMECT.

04/13/83

-1.00			
-0.50	.01	.01	
0.00	.07	.09	
.50	.13	.22	
	.32		
1.00	.51	.51	*
1.50	3.41	1.04	***
2.00	25.69	4.45	*****
2.50	44.52	30.1-	*****
3.00	13.26	74.66	*****
3.50	2.04	87.93	**
4.00	10.04	89.96	*****
*****		100.00	

MEAN ST.DEV. SKENNESS KUPTOSIS

2.64 .45 -.36 3.77 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -.5 TO 4.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	2.72	5TH	2.01	16TH	2.22	25TH	2.40
			75TH	3.01	84TH	3.35	95TH	*****

PCT. GRAVEL 0.00 SAND 89.96 SILT+CLAY 10.04

GRAVEL+SAND 89.96 GRAV+SAND/SILT+CLAY 8.96

LABELS SHEPARD -SAND FOLK(GMS)-MUDDY SAND (SCS)-

AUTOREPORT

NHB 39

SIEVE ONLY

SAMPLE WT.=134.5300

PHI PCT. CUM PCT.

04/19/83

0.00

.25 .06 .06

.50 .07 .13

.75 .10 .24

1.00 .18 .42

1.25 .22 .63

1.50 .82 1.45

1.75 2.45 3.90

2.00 20.66 24.56

2.25 25.47 50.03

2.50 33.95 83.98

2.75 11.90 95.88

3.00 2.30 98.19

3.25 .88 99.07

3.50 .19 99.26

3.75 .17 99.43

4.00 .07 99.49

***** .51 100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

2.22 .33 -.12 3.42

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE .3 TO 4.0 PHI

2.22 .30 -.09 .92

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES MEDIAN 2.25 5TH 1.76 16TH 1.90 25TH 2.00 75TH 2.43 84TH 2.51 95TH 2.73

PCT. GRAVEL 0.00 SAND 99.49 SILT+CLAY .51

GRAVEL+SAND 99.49 GRAV+SAND/SILT+CLAY 196.84

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-

AUTOREPORT

NHB 40

SIEVE ONLY

SAMPLE WT.=149.5400

04/19/83

PHI PCT. CUMFCT.

0.00

.25	.01	.01
.50	.03	.03
.75	.11	.14
1.00	.43	.57

1.25	1.60	2.17
1.50	8.49	10.66
1.75	18.40	29.06
2.00	44.63	73.69

2.25	14.66	88.36
2.50	8.63	96.99
2.75	2.21	99.20
3.00	.51	99.71

3.25	.21	99.92
3.50	.04	99.96
3.75	.02	99.98
4.00	.01	99.99

*****	.01	100.00
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MEAN ST.DEV. SKEWNESS KURTOSIS

1.87	.32	.11	1.65
------	-----	-----	------

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE .3 TO 4.0 PHI

1.87	.32	.03	1.39
------	-----	-----	------

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.87	5TH	1.33	16TH	1.57	25TH	1.69
			75TH	2.02	84TH	2.13	95TH	2.44

PCT. GRAVEL 0.00 SAND 99.99 SILT+CLAY .01

GRAVEL+SAND 99.99 GRAV+SAND/SILT+CLAY 7476.00

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-

AUTOREPORT

COMMENTS -
NHB 41 COBBLE PRESENT / 266.26G / # + X6 - X + 3MM
PEBBLE + CLANCHELL PRESENT
ORGANICS + SOME SAND PRESENT / 3.2G

*
*
*

NHB 42

120493

SIEVE AND PIPETTE (2)

SAMPLE WT.=118.6940

PHI PCT. CUMFCT.

04/13/63

-1.00			
-0.50	.06	.06	
0.00	.15	.21	
.50	.21	.42	
	.39		
1.00	.75	.81	*
1.50	1.21	1.57	*
2.00	3.01	2.78	***
2.50	6.05	5.78	*****
3.00	27.53	10.83	*****
3.50	28.00	42.37	*****
4.00	27.72	70.36	*****
8.00	1.92	98.08	**
****	100.00		

MEAN ST.DEV. SKEWNESS KURTOSIS

3.26 .60 -1.12 7.57

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -.5 TO 4.0 PHI

4.21 1.52 .55 1.43

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	3.64	5TH	2.37	16TH	3.02	25TH	3.16
			75TH	4.67	84TH	5.97	95TH	7.56

PCT. GRAVEL	0.00	SAND	70.36	SILT (PIPETTE)	27.72	CLAY (PIPETTE)	1.92
				(SEDIGRAPH)	0.00	(SEDIGRAPH)	0.00

GRAVEL+SAND 70.36 SILT/(SILT+CLAY) 93.52 PCT.GRAV+SAND/SILT+CLAY 2.37

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

NHB 43

SIEVE AND PIPETTE (2)

SAMPLE WT. = 27.3440

04/21/83

PHI	PCT.	CUMFCT.
0.00	.66	*
.50	1.24	.66
1.00	1.17	1.90
1.50	1.90	3.07
2.00	4.75	4.97
2.50	16.13	9.73
3.00	26.55	25.86
3.50	15.54	52.41
4.00	24.90	68.24
8.00	6.85	93.15
*****	100.00	

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*
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MEAN ST.DEV. SKEWNESS KURTOSIS

3.03 .69 -.81 3.36 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
FOR SIZE RANGE .5 TO 4.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	3.45	5TH	2.00	16TH	2.69	25TH	2.97
			75TH	5.39	84TH	6.53	95TH	*****

PCT. GRAVEL 0.00 SAND 68.24 SILT (PIPETTE) 24.90 CLAY (PIPETTE) 6.85
(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 68.24 SILT/(SILT+CLAY) 73.42 PCT. GRAV+SAND/SILT+CLAY 2.15

LABELS SHEPARD -SILTY SAND FOLK (GMS) -MUDDY SAND (SCS) -SILTY SAND

COMMENTS -
NHB 43 SMALL PEBBLE PRESENT/18X3X6MM/1.95G

04/21/83

PHI	PCT.	CUM.PCT.	
0.00			
	.35		
.50		.35	*
1.00	.67	1.01	
	.38	1.39	
1.50		1.39	*
2.00	.86	2.25	
	2.91		***
2.50		5.16	
3.00	4.50	9.66	****
	8.49		*****
3.50		13.15	
4.00	24.80	42.95	*****
	52.38		*****
8.00		95.33	
	4.67		*****
*****		100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

3.31	.70	-1.02	4.50	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
				FOR SIZE RANGE .5 TO 4.0 PHI
5.02	1.77	.31	.50	FOLK GRAPHIC STATISTICAL PARAMETERS
				FOLK AND WARD, 1957

PERCENTILES	MEDIAN	4.54	5TH	2.47	16TH	3.37	25TH	3.64
			75TH	6.45	84TH	7.13	95TH	7.97

PCT. GRAVEL	0.00	SAND	42.95	SILT (PIPETTE)	52.38	CLAY (PIPETTE)	4.67
				(SEDIGRAPH)	0.00	(SEDIGRAPH)	0.00

GRAVEL+SAND	42.95	SILT/(SILT+CLAY)	91.81	PCT.GRAV+SAND/SILT+CLAY	.75
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LABELS SHEPARD	-SANDY SILT	FOLK(GMS)-SANDY MUD	(SCS)-SANDY SILT
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NHB 45

SIEVE ONLY

SAMPLE WT.=165.1100

PHI PCT. CUMFCT.

04/13/33

-3.50			*****
-3.00	5.22	5.22	**
-2.50	2.17	7.40	***
-2.00	3.00	10.40	***
-1.50	3.46	13.86	****
-1.00	3.95	17.81	*****
-.50	6.80	24.61	*****
0.00	15.10	41.71	*****
.50	18.51	60.22	*****
1.00	19.16	79.38	*****
1.50	9.96	89.34	*****
2.00	4.40	93.74	****
2.50	2.13	95.87	**
3.00	1.90	97.77	*
3.50	1.15	98.92	*
4.00	.63	99.55	*
****	.63	100.00	*

MEAN ST.DEV. SKEWNESS KURTOSIS

.04	1.40	-.24	.43
.08	1.42	-.20	1.48

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -3.0 TO 4.0 PHI

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARE, 1957

PERCENTILES	MEDIAN	.22	5TH	-3.02	16TH	-1.23	25TH	-.59
			75TH	.89	84TH	1.23	95TH	2.30

PCT. GRAVEL	17.81	SAND	81.56	SILT+CLAY	.63
GRAVEL+SAND	99.37			GRAV+SAND/SILT+CLAY	157.76

LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

NHB 46

SIEVE ONLY

SAMPLE WT.=144.6300

PHI PCT. CUMFCT.

04/13/83

-1.50	.48		
-1.00	1.49	.48	*
-.50	5.98	1.97	*****
0.00	15.50	7.95	*****
.50	30.39	23.45	*****
1.00	24.25	53.84	*****
1.50	12.94	78.10	*****
2.00	8.99	91.03	*****
2.50	2.41	97.02	**
3.00	.42	99.43	
3.50	.08	99.85	
4.00	.08	99.92	
*****		100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

.98 .74 .09 .38

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -1.0 TO 4.0 PHI

.97 .76 .08 1.15

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.94	5TH	-.25	16TH	.26	25TH	.53
			75TH	1.44	84TH	1.73	95TH	2.33

PCT. GRAVEL .48 SAND 99.45 SILT+CLAY .08
 GRAVEL+SAND 99.92 GRAV+SAND/SILT+CLAY 1313.62
 LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-

NHB 47

SIEVE ONLY

SAMPLE WT.=167.3100

PHI PCT. CUMFCT.

04/13/63

-1.50			
-1.00	.15	.15	
-.50	.16	.31	
0.00	.41	.72	
.50	.97		*
1.00	2.49	1.70	**
1.50	3.95	4.19	****
2.00	5.79	8.14	*****
2.50	11.80	13.93	*****
3.00	34.30	29.73	*****
3.50	30.24	60.03	*****
4.00	7.27	98.27	*****
	2.46	97.54	**
****	100.00		

MEAN ST.DEV. SKEWNESS KURTOSIS

2.70	.76	-.74	3.01	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -1.0 TO 4.0 PHI
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2.78	.74	-.23	2.23	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957
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PERCENTILES	MEDIAN	2.89	5TH	1.10	16TH	2.09	25TH	2.47
			75TH	3.25	84TH	3.43	95TH	3.83

PCT. GRAVEL	.15	SAND	97.39	SILT+CLAY	2.46		
GRAVEL+SAND	97.54					GRAV+SAND/SILT+CLAY	39.71
LABELS SHEPARD	-SAND		FOLK(GMS)-SAND			(SCS)-	

NH8 48

SIEVE ONLY

SAMPLE WT.=179.5700

PHI PCT. CUMFCT.

04/13/83

-3.00			*
-2.50	1.23	1.23	*
-2.00	.57	1.80	*
-1.50	1.14	2.93	*
-1.00	1.39	4.32	*
-0.50	3.11	7.43	***
0.00	7.03	14.46	*****
.50	14.84	29.30	*****
1.00	31.15	60.45	*****
1.50	24.31	84.76	*****
2.00	10.70	95.46	*****
2.50	2.76	98.22	***
3.00	1.09	99.30	*
3.50	.46	99.76	
4.00	.08	99.84	
****	.16	100.00	

MEAN ST. DEV. SKEWNESS KURTOSIS

.75	.90	-.51	2.64	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -2.5 TO 4.0 PHI
.79	.79	-.15	1.25	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.83	5TH	-.89	16TH	.05	25TH	.36
			75TH	1.30	84TH	1.43	95TH	1.98

PCT. GRAVEL 4.32 SAND 95.52 SILT+CLAY .16

GRAVEL+SAND 99.84 GRAV+SAND/SILT+CLAY 640.32

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-

NHB 49

SIEVE ONLY

SAMPLE WT.=114.3100

PHI PCT. CUMFCT.

04/13/53

-1.50			*****
-1.00	6.78	6.78	*****
-.50	6.34	13.12	*****
0.00	9.49	22.61	*****
.50	14.56	37.17	*****
1.00	22.11	59.28	*****
1.50	19.62	78.90	*****
2.00	14.06	92.96	*****
2.50	5.09	98.05	*****
3.00	1.12	99.57	*****
3.50	.29	99.86	*****
4.00	.02	99.90	*****
4.75	.10	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

.70	.96	-.14	-.41
.71	1.01	-.14	1.03

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -1.0 TO 4.0 PHI

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	.79	5TH	-1.13	16TH	-.35	25TH	.05
			75TH	1.40	84TH	1.65	95TH	2.15

PCT. GRAVEL 6.78 SAND 93.12 SILT+CLAY .10
 GRAVEL+SAND 99.90 GRAV+SAND/SILT+CLAY 1033.13
 LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

COMMENTS -

NHB 49 LIMESTONE COBBLE 78X5-LX-3447-316.496 ASSORTED PEBBLES LARGER THAN 11.2MM